

E1
circle
a topping heater, said topping heater capable of raising the temperature of said feed water, said feed water input line coupled in flow communication with said steam generator, said topping heater, and said high temperature water cracking system, said feed water disassociated into hydrogen and oxygen in said high temperature water cracking system.

6. (twice amended) A system in accordance with Claim 5 further comprising a topping heater fuel, said topping heater fuel comprises a portion of said oxygen and hydrogen disassociated from said feed water in said high temperature water cracking system.

E2
7. (twice amended) A system in accordance with Claim 5 further comprising a first regenerative heat exchanger and a topping heater exhaust line, said exhaust line coupled to said first regenerative heat exchanger to direct exhaust from said gas fired topping heater into said first regenerative heat exchanger, said feed water input line coupled to said first regenerative heat exchanger downstream of said steam generator.

E3
25. (four times amended) A system for generating hydrogen comprising:
feed water;
a liquid metal nuclear reactor having a non-radioactive secondary heat loop comprising a recirculated heat transfer medium;
a steam generator connected to said secondary heat loop, said heat transfer medium and said feed water passing through said steam generator, said steam generator capable of raising the temperature of said feed water to between about 450°C to about 550°C;

a high temperature water cracking system, said feed water coupled to said water cracking system by a feed water input line, said secondary heat loop and said recirculated heat transfer medium being separate from said high temperature water cracking system; and

*E3
Cancelled*
a topping heater, said topping heater capable of raising the temperature of said feed water so that said feed water in said high temperature water cracking system is at least about 850°C, said feed water input line coupled in flow communication with said steam generator, said topping heater, and said high temperature water cracking system, said feed water disassociated into hydrogen and oxygen in said high temperature water cracking system.

28. (four times amended) A system in accordance with Claim 27 further comprising a topping heater fuel, said topping heater fuel comprises a portion of said oxygen and hydrogen disassociated from said feed water in said high temperature water cracking system.

E4
29. (twice amended) A system in accordance with Claim 27 further comprising a first regenerative heat exchanger and a topping heater exhaust line, said exhaust line coupled to said first regenerative heat exchanger to direct exhaust from said gas fired topping heater into said first regenerative heat exchanger, said feed water input line coupled to said first regenerative heat exchanger downstream of said steam generator.

Remarks

The Office Action dated May 22, 2003 has been carefully reviewed and the foregoing amendment has been made in consequence thereof.